ABSTRACT OF THE DISCLOSURE

A ruthenium electrode with a low amount of oxygen contamination and high thermal stability is formed by a chemical vapor deposition method. In the chemical vapor deposition method using an organoruthenium compound as a precursor, the introduction of an oxidation gas is limited to when the precursor is supplying, and the reaction is allowed to occur at a low oxygen partial pressure. Consequently, it is possible to form a ruthenium film with a low amount of oxygen contamination. Further, after formation of the ruthenium film, annealing at not less than the formation temperature is performed, thereby forming a ruthenium film with high thermal stability.